SVKM's
D. J. Sanghvi College of Engineering

Program: B.Tech in Mechanical Engineering **Academic Year: 2022** **Duration: 3 hours**
Date: 25.01.2023
Time: 09:00 am to 12:00 pm
Subject: Manufacturing Processes (Semester III) **Marks: 75**

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover page of the Answer Book, which is provided for their use.
(1) This question paper contains two pages.
(2) All Questions are Compulsory.
(3) All questions carry equal marks.
(4) Answer to each new question is to be started on a fresh page.
(5) Figures in the brackets on the right indicate full marks.
(6) Assume suitable data wherever required, but justify it.
(7) Draw the neat labelled diagrams, wherever necessary.

Question No.		Max. Marks
Q1 (a)	Draw merchant circle showing all forces and angles. Compare with neat sketch Orthogonal cutting and oblique cutting. **OR** Enlist different operations performed on Lathe machine. Explain with neat sketch any four operations.	[10] [10]
Q1 (b)	Discuss velocity relationship in orthogonal cutting with the help of velocity triangle and its expression. **OR** Explain metal casting process in detail.	[5] [5]
Q2 (a)	Explain with sketch any four types of pattern with its advantages and disadvantages.	[10]
Q2 (b)	Explain investment casting process in detail, discuss its advantages.	[05]
Q3 (a)	What is the principle of welding? Explain with sketch Thermit welding process in detail. **OR** i. Explain polarity in DC arc welding ii. Explain with sketch Projection welding	[10] [05] [05]
Q3 (b)	Describe with neat sketches the types of flames obtained in oxy-acetylene gas welding process.	[05]

Q4 (a)	Explain with neat sketch types of tube drawing in rolling. **OR** i. Explain with sketch forward extrusion process. ii. Discuss various types of rolling defects.	[10] [05] [05]
Q4 (b)	Explain with neat sketch Gear rolling process	[05]
Q5	Write a short note on (Any three) i. Define Powder metallurgy with its advantage. ii. Shrinkage allowance in casting iii. Types of chips iv. Brazing process	 [05] [05] [05] [05]